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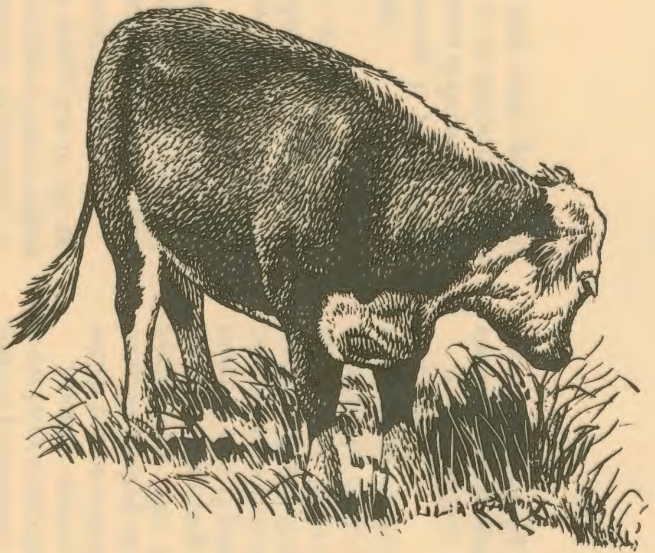
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Grass Tetany in Cattle



Cooperative Extension Service
U. S. Department of Agriculture
South Dakota State University

Grass Tetany in Cattle



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Grass tetany, recognized as a complicated magnesium deficiency, usually makes its appearance when cows are changed from the normal winter feeds to a new growth of grass in the early spring. In the Northern Great Plains, the critical period generally is late April and early May. A similar condition called "wheat pasture poisoning" occurs in cattle grazing winter wheat, particularly in the southern portion of the Great Plains. The extent to which these two diseases share common causes has not been determined.

Symptoms

Under range conditions, many cattle that die from grass tetany are never observed while showing symptoms of the disease. This is due to the short time interval, most commonly only a few hours, between onset of visible symptoms and death. In early stages of the disease, cattle are easily excited and show an abnormal degree of nervousness. Muscular incoordination results in a staggering gait with a tendency to fall. Tetanic seizure may occur spontaneously or may be brought on by undue excitement. At that time, muscles undergo general tetanic contractions until the animal reaches a state of prostration. Convulsions then occur intermittently with periods of relaxation; death follows.

Analysis of blood taken prior to a tetanic attack reveals low blood magnesium levels, sometimes accompanied by low calcium concentrations. Misleading results often are obtained from analysis of blood taken during or following tetany, this being due to the release of magnesium from the damaged tissues.

Grass tetany may sometimes be confused with milk fever which is characterized by low blood calcium levels. However, grass tetany most often appears between the first and twelfth week after calving, while milk fever generally occurs within only a few days. Further, the hyperirritability and nervousness associated with grass tetany are not seen with milk fever.

Causes and Methods of Prevention

The exact cause of grass tetany is not known. While it appears to be a magnesium deficiency, analysis of the grass seldom shows it to be abnormally low in this mineral. Cows grazing lush early grass may

not consume adequate amounts of dry matter and, therefore, magnesium. However, the main cause appears to be failure to adequately utilize magnesium obtained from the grass. Reasons for poor magnesium utilization under these conditions are not clear, but various researchers have suggested relationships between poor magnesium utilization and certain grass components including nitrogenous compounds, potassium and organic acids, all of which tend to be elevated in the early growth of grass.

It is often recommended that cows in an area where grass tetany is a problem should not be allowed to graze when the grass is young and growing rapidly. Instead they may be confined to a drylot and fed hay of sufficient quality and quantity to meet their daily nutritional requirements. This has been shown to be an effective method for preventing the disease. However, it may be impractical and expensive for many ranchers.

Other methods of preventing grass tetany have generally been concerned with increasing dietary magnesium intake. One method is to top dress the pasture with a magnesium fertilizer. Prevention in this manner depends on the resulting increase of magnesium content in the young grass plants. The amount and formulation of fertilizer required in relation to various soil types and rainfall is not well established, and the practicality of this method is questionable due to the large areas often grazed.

Another method of increasing magnesium intake which has provided effective and practical results has been the feeding of a palatable supplement containing magnesium. The daily magnesium requirement of beef cows nursing young calves is probably in the range of 6 to 15 grams per head daily. Using magnesium oxide, which is approximately 60% magnesium, between 10 and 25 grams would be required to supply this amount. Since some magnesium would be obtained from the feed, a daily supplement of 10 grams of magnesium oxide should be adequate for lactating beef cows.

It is important that all cows in the herd actually consume the magnesium supplement regularly, both before and during the critical period. Surplus mag-

nesium is apparently not stored to a great extent in the animal's body. Giving cows extra magnesium before new grass starts, without supplementing them while on grass, cannot be expected to prevent the disease. A rapid and severe fall in blood magnesium levels may occur within 48 hours after magnesium supplementation has ceased. Due to erratic mineral consumption when fed free choice, it may be well to force-feed minerals during the critical period. If cows are being fed energy or protein cake on the range, it is recommended that minerals be included in the supplement at levels which would supply at least 6 grams of magnesium in addition to calcium and phosphorus approximating 15 grams per head daily. This is equivalent to 1.32% magnesium (2.2% magnesium oxide) and 3.3% each of calcium and phosphorus in a supplement fed at a rate of 1 pound per head daily, or one-half these percentages if fed at a rate of 2 pounds.

Treatment

The most common treatment for grass tetany is an intravenous injection of 500 milliliters of a commercial preparation of calcium and magnesium in a dextrose solution. If treatment is given immediately (within approximately 1 hour) after the development of early symptoms, recovery usually is fairly rapid. However, chance of recovery is slight if treatment is not started before coma. Timely treatment of range cows is often difficult because of rapid onset and progress of the disease which may vary from a few hours to more than a day. Since range cows are seldom observed more often than once daily, many cows that die from grass tetany are never observed while showing symptoms of the disease. This reduces the effectiveness of a recommended treatment administered by the rancher or veterinarian. Emphasis must be placed on prevention rather than treatment.

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